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ABSTRACT

This study of the Birds in Canada exhibit (National Museum of Natural Sciences) examines the effectiveness of traditional and modern displays and the visitors' use of identification labels, text, map, and film. Over 700 museum visitors comprised the random sample. Evaluation methods included observation, interview, and cognitive testing, using pre- and posttests. Results indicate that while traditional and modern displays are equally effective, neither type increases visitors' knowledge of the subject matter. The displays have a poor holding power and the incidence of visitors' reading the text is low. Less than 5% of all visitors stop at the introductory text and map. A large segment of the sample were unable to identify specimens or had difficulty doing so. Finally, although the accompanying film is effective, only 32% of the visitors viewed it. Recommendations are to redesign and rewrite the information and to evaluate it before it becomes a part of the permanent display. Information panels should be moved to a place where visitors stop more frequently. Samples of tests, interview and testing results, and a description of data collecting methods are provided. (Author/KC)

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# A Preliminary Evaluation of the "Birds in Canada" Exhibit

submitted to:

National Museum of Natural Sciences

November 1980

by

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## SUMMARY

The Birds in Canada exhibit was evaluated in order to provide exhibit planners with information that would assist in redesigning the exhibit. This study is the first in a series of proposed evaluations intended to increase the overall effectiveness of the exhibit. The following areas were examined:

1. Relative effectiveness of traditional and modern displays in terms of:

   a) ability to attract visitors
   b) ability to hold the attention of visitors after initial attraction has occured
   c) incidence and extent of reading
   d) relative visitor preference for the two types of displays
   e) ability to teach,

2. Visitor use of identification labels,

3. Visitor use of introductory text and map,

4. Visitor use of exhibit - as hallway or display area,

5. Effectiveness of the film, Gannets on Bonaventure Island.

To fully research these areas, a combination of observation, interview, and cognitive testing techniques was employed. Such a varied approach provides a broader data base upon which to base conclusions.

The results of this study reveal several areas in which improvement is needed. The major findings and recommendations are as follows:

1. While traditional and modern dioramas are, in general, equally effective, neither type is increasing visitors' knowledge of the subject matter presented in the exhibit. This absence of teaching ability is caused by the poor holding power of the displays, and the low incidence of visitors reading the text. Thus, the information should be redesigned to increase its attractiveness and re-written to make it more appealing to read. Evaluation should be conducted on all proposed ideas to ensure optimal effectiveness before permanemt installation.

2. A particulary serious problem was found regarding the introductory text and map. Less than 5% of all visitors stop at the two panels, and those who do spend less than 10 seconds reading or absorbing the information. Since these panels explain the main theme of the exhibit and provide a framework in which the displays are to be viewed, careful study should be devoted to this area. Possible solutions are a) to move the panels into the main hall of the exhibit where visitors tend to stop more frequently, and b) to accompany th information with specimens since visitors are attracted to a display and will read because of its specimens.

3. A third problem was discovered concerning the identification labels. A large segment of the visiting population has serious difficulty in trying to identify the specimens (35%); and a further 22% were




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unable to do so at all. During the interview, visitors made several suggestions to facilitate identification. The major comments are as follows:

a) enlarge the photographs of the specimens (27%)
b) assign corresponding numbers to the photos and specimens (17%)
c) place name tags on the specimens (10%)
d) use a photo or sillouette of the display (9%)
e) sequence the specimens and the labels (9%)

These, and other ideas, should be evaluated in order to discover the most effective means of identification.

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## DESCRIPTION OF THE BIRDS IN CANADA EXHIBIT

The Birds in Canada exhibit is intended to introduce museum visitors of all ages to species of birds typically found in Canada. The exhibit is organized to present these species in the context of the nine bio-geographical regions. Each region, because of its particular characteristics, serves as a habitat for a unique array of bird species.

The exhibit is arranged such that the main theme is introduced on a large textual panel placed at one of the two entrances. The bio-geographic regions are then presented on a graphic map of Canada. The remainder of the exhibit deals individually with each of the regions by presenting displays that depict birds in their natural surroundings. For a complete list of the displays amd their accompanying texts, see Appendix C - 1.

There are basically two different types of displays in the Birds in Canada exhibit: traditional and modern dioramas. The traditional diorama is designed to recreate the experience of seeing a specific locale, and dates from an age when travel was not widespread. They are exact reproductions of specific sites with painted backgrounds helping to create the illusion of a realistic setting. The more modern style of diorama is intended to interpret the environment. They are general representations of particular characteristics of an area rather than being exact reproductions of specific sites.

The traditional dioramas are inset into the walls and can be viewed from the front only. They are positioned approximately three feet apart. The modern dioramas are free-standing glass units located in the middle of the room. There are two groups of two dioramas and they are visible from three sides.

The Birds in Canada exhibit is located on the same floor as and is positioned in front of the Mammals in Canada exhibit. A cinema is located in a separate room to the left of the hallway between the two exhibits. The cinema shows two films, each of which pertains to a different exhibit.

## DESCRIPTION OF THE EVALUATION

### Evaluation Objectives

The evaluation of the Birds in Canada exhibit was initiated in response to a need expressed by exhibit planners for information that would assist in redesigning the exhibit. It is the first in a series of proposed studies intended to increase the overall effectiveness of the exhibit. This study was designed to examine specific areas identified as being useful to exhibit planners. They are as follows:

1. Relative effectiveness of traditional and modern displays in terms of:

   a) ability to attract visitors
   b) ability to hold visitors' attention after initial attraction has occured
   c) incidence and extent of reading
   d) relative visitor preference for the two types of displays
   e) ability to teach,

2. Visitor use of identification labels,

3. Visitor use of introductory text and map,

4. Visitor use of exhibit - as hallway or display area, and

5. Effectiveness of the film, Gannets on Bonaventure Island.

To fully research these areas, a combination of observation, interview, and cognitive testing techniques was employed. Such an approach provides a broader data base upon which to base conclusions.

### Observation Methodology

Five different types of observations were made in the Birds in Canada exhibit. To record all five observations for each visitor proved to be impossible without appropriate recording devices. Therefore, two sets of observations were recorded for two separate smaples of visitors. The first set included Path, Attraction Power, Holding Power, and Exhibit Staying Time. The second set was comprised of recording Behaviour at Displays. The following table describes these observations.

Description of Observations

| Observation | Description | Rationale |
|---|---|---|
| Path | The order in which the exhibit was viewed. | Helps in determining how visitors are using the exhibit. |
| Attraction Power | The proportion of the number of visitors who stop to the number who pass by a display. | In order to convey its message, a display must be able to attract visitors to stop. |
| Holding Power | The average viewing time of each display. | A display should induce people to stay for a sufficient amount of time for its message to be absorbed. |
| Exhibit Staying Time | The average time spent inside the exhibit. | Helps to determine how visitors are using the exhibit. |
| Behaviour at Displays | The proportion of visitors who look at either the specimens or text only, or both. | A display must be read if the informational content is to be comprehended. |

For an explanation of the methods for recording these observations, see Appendix B - 1.

Interview Methodology

An interview was developed to gather data on visitor opinions concerning the various elements in the Birds in Canada exhibit. It was composed of predetermined questions to ensure that the responses would be of a similar nature. An unstructured interview may have left the questions posed by exhibit planners unanswered in many areas.

The interview included both open- and closed-ended questions. The close-ended questions, which provide the respondents with categories from which to choose and answer, were used to obtain demographic information. The open-

ended questions had no answers provided and were used to obtain spontaneous replies to subjective questions. See Appendix B-2 for an example of the interview.

When using open-ended question formats, an interviewer must often probe to obtain complete responses. For this reason, interviewers were given a three week training period during which they were assisted in developing their interviewing skills.

The interview was pre-tested for ambiguity and format problems before the survey was conducted.

## Cognitive Testing Methodology

A cognitive test was developed to measure the amount of information retained by visitors who see the exhibit. Learning was assessed by administering a pre-test to visitors who had not seen the exhibit and a post-test to those who had, and then comparing their average scores to determine whether they had increased significantly.

Both the pre and post-tests were comprised of the same thirty-one true and false itmes. Each item of a true and false test will be answered correctly by approximately 50% of the respondents when they are unfamiliar with the subject matter. The overall test mean will also be close to 50% when respondents guess the answers. The actual results should be interpreted with this in mind.

For an example of the test, see Appendix B-3.

## Sampling Procedures

Random sampling of the observational data was acheived by observing the first visitor who entered the exhibit, making observations until the visitor exited, and repeating the procedure with the next visitor who entered. Random variation in vistor entry time ensures that this method results in random selection. Both sets of observations were collected in this manner, with the exception that only visitors who stopped at least once were included in the sample for determining Behaviour at Displays.

Random sampling of the interview data was acheived by placing interviewers at each of the two entrances and selecting the first visitor who exited. After the interview was completed, the next visitor who exited was

approached. Visitors less than twelve years of age were not interviewed because it was found that they could not express sufficiently sophisticated opinions required for this interview. Under such circumstances, an interview could be developed specifically for younger children. Unfortunately, in this case, lack of time proved prohibitive.

Sample sizes of 400 were collected for both sets of observations, 100 for both the pre- and post-tests, and 270 for the interview.

## RESULTS

### I. Relative Effectiveness of Traditional and Modern Dioramas

> Overall, the two types of displays are equally effective; however, neither perfroms at a sufficiently high level on any of the measures to be considered acceptable.

#### Attraction Power

Traditional and modern dioramas do not differ significantly in the ability to attract visitors: 37% of all visitors stop at the traditional displays, while 34% stop at the modern displays. This 3% difference is not significant.

Regardless of comparison, neither type is very successful in attracting visitors: the highest percentage of visitors who stop at a display is 55%. The following table lists each diorama, its attraction power percentage, and ranking by percentage of stops.

Attraction Power of Dioramas

| Diorama Title | Type | Attraction Power | Rank |
|---|---|---|---|
| Arctic Tundra | Traditional | 55 % | 1 |
| Atlantic Coast | Traditional | 48 % | 2 |
| Grasslands | Traditional | 47 % | 3 |
| Pacific Coast | Modern | 42 % | 4 |
| Prairie Marsh | Traditional | 41 % | 5 |
| Eastern Hardwoods | Modern | 39 % | 6 |
| Boreal Forest | Modern | 31 % | 7 |
| Western Mountains | Traditional | 29 % | 8 |
| Pacific Ocean | Modern | 25 % | 9 |
| Migration | Traditional | 21 % | 10 |
| Deciduous Forest | Traditional | 21 % | 11 |

#### Holding Power

A comparison of the average viewing times of the two types of displays shows that they do not differ in terms of the ability to hold visitors: the average viewing time of the traditional dioramas is 23 seconds, while the

average viewing time of the modern dioramas is 17 seconds. This 6 second difference is not statistically significant.

Again, neither type is very effective. The average viewing time of most displays are not long enough to allow for transfer of information to occur. From the table shown below, it can be seen that none of the displays are viewed as long as is required for both looking at specimens and reading. Most displays are viewed for a time that is less than one third of that required, as is shown in the Holding Power Coefficient column of the table. The most successful diorama in this regard is viewed for only half of that which is needed.

Holding Power of Dioramas

| Diorama Title | Type | Observed Viewing Time | Required Reading Time | Total Required Time | Holding Power Coefficient |
|---|---|---|---|---|---|
| Prairie Marsh | T | 40 seconds | 20 seconds | 78 seconds | .51 |
| Arctic Tundra | T | 27 | 15 | 73 | .37 |
| Eastern Hardwoods | M | 22 | 20 | 78 | .28 |
| Atlantic Coast | T | 21 | 20 | 28 | .27 |
| Grasslands | T | 19 | 14 | 72 | .26 |
| Western Mountains | T | 20 | 18 | 76 | .26 |
| Boreal Forest | M | 20 | 20 | 78 | .26 |
| Deciduous Forest | T | 17 | 17 | 75 | .23 |
| Migration | T | 16 | 25 | 83 | .19 |
| Pacific Ocean | M | 14 | 19 | 77 | .18 |
| Pacific Coast | M | 13 | 19 | 77 | .17 |

Required Reading Time is the average time taken by visitors to read all of the accompanying text.

Total Required Time the summ of a) an estimate of the average time taken by visitors to look at the specimens and b) the Required Reading Time.

The Holding Power Coefficient is the proportion of Observed Viewing Time to Total Required Time expressed as a percentage.

---

Behaviour at Displays: Reading

There does exist a difference between traditional and modern dioramas in terms of Behaviour at Displays. Visitors look at the text in modern displays more so than in the traditional displays. Text, as well as specimens

is looked at by 52% of all visitors in the modern type, while in the traditional type it is looked by 36%. This difference of 16% is statistically significant.

Despite the better performance of the modern displays, neither type is particularly effective in terms of inducing visitors to read. From the following table, it can be seen that the highest occurence of this behaviour is only 57%.

Behaviour at Displays

| Diorama Title | Looked at Specimens and Text | Looked at Specimens only | Rank |
|---|---|---|---|
| Boreal Forest | 57 % | 43 % | 1 |
| Pacific Ocean | 57 % | 43 % | 1 |
| Eastern Hardwoods | 53 % | 47 % | 2 |
| Pacific Coast | 46 % | 54 % | 3 |
| Migration | 44 % | 56 % | 4 |
| Grasslands | 43 % | 57 % | 5 |
| Prairie Marsh | 40 % | 60 % | 6 |
| Deciduous Forest | 40 % | 60 % | 6 |
| Western Mountains | 34 % | 66 % | 7 |
| Atlantic Coast | 31 % | 69 % | 8 |
| Arctic Tundra | 30 % | 70 % | 9 |

Visitors report doing more reading than is indicated by the observational data. When asked if they had read, 87% of all visitors said that they had. This discrepancy may be caused by the tendency of most people to be positive: they feel that not reading in a museum is undesirable. In this case, the data from the observations is more valid than that of the interview as they are more objective.

The results from the interview are not entirely positive, however. Most visitors who say that they read report that they read a little or a half of what they looked at (69%). Considering that there is an extremely small amount of textual information presented, these findings clearly indicate a need for improving the existing text. A evaluation of possible replacements should be conducted to ensure their effectiveness.

## Teaching Ability

The poor holding power of the displays and the low incidence of reading have a pronounced effect on the amount of information retained by the visitors. The results of the cognitive testing reveal that visitors who have seen the exhibit do not know any more about the subject matter presented in the exhibit than those who have never seen the Birds in Canada exhibit. The increase from the pre-test mean (56.8%) to the post-test mean (60.7%) was 3.8%, which is not statistically significant. For complete results of the cognitive testing, see Appendix A-2.

The ability of a display to teach is clearly related to its holding power. The longer vistors stay at a display, the more likely they will learn from it. The Pearson Product Moment Correlation Cooeficient for this relationship is .82 (i.e. quite a strong relationship). There is no such relationship between learning and the attraction power of a display (r=.25). In other words, it is not enough that visitors merely stop and look at a display for learning to occur. This, coupled with the finding that 69% of visitors who read, read a little or a half, and that an additional 13% do not read at all, indicates that the text itself is failing to hold the visitors' attention. Thus, the existing information needs to be improved such that it is presented in a more appealing and interesting manner.

A comparison of the two types of displays shows that the traditional diroramas are slightly better able to teach than are the modern type. There were significant increases on several of the test questions that pertained three of the traditional dioramas: Atlantic Coast, Prairie Marsh, and Western Mountains. However, because so few dioramas actually were able to teach, it would be more fair to conclude that these particular dioramas are effective, and not that the traditional type as a group are better.

## Visitor Preference

The interview data clearly show that the traditional dioramas are preferred by visitors more often (58%) than are the modern dioramas (29%); 23% of the visitors had no preference. Among the reasons for this preference are: a) that they look more realistic, b) their backgrounds are more appealing, c) they are more "eye-catching", d) have more sense of depth, and e) are more spacious.

## II. Visitor Use of Identification Labels

> Most visitors are able to use the identification labels to locate the specimens; however, enough of the population experiences some difficulty to warrant redesign.

Most visitors are able to identify the specimens by using the identification labels; however, 22% are not able to use them at all, and a further 13% have difficulty in trying to do so. This 35% of all visitors who experience difficulty to some degree should not be ignored. It is a large enough segment of the visiting population to indicate that redesign and testing are needed.

Possible solutions were offered by the visitors during the interview. They are as follows:

a) Enlarge the photographs of the specimens (27%)
b) Assign corresponding numbers to the photographs and specimens (17%)
c) Place name tages on the specimens (10%)
d) Use a sillouette or photograph of the display (9%)
e) Use more accurate photographs (9%)
f) Sequence the presentation of the specimens and the labels (9%)
g) Clean the specimens (6%)
h) Place the specimens closer to the viewer (5%)
i) Describe the specimens more fully (3%)
j) Place the photographs at eye level; raise hight (2%)
k) Brighten the display (1%)
l) Duplicate labels; place on either side of the display (1%)

## III. Visitor Use of Introductory Text and Map

> There exists a serious problem with botn the introductory text and map. Most visitors do not stop at either of the two panels primarily beoause they are not seen; or when they are seen, they are not perceived to be attractive enough to induce stopping.

From the observational data, it was found that most visitors do not stop at either the text (99% do not stop) or the map (97% do not stop). Furthermore, those visitors who do stop spend only a short time looking at the two panels. The average viewing time of the textual panel is only 8 seconds, while the required reading time is 51 seconds. Similarly, the

average viewing time of the graphic panel is 6 seconds, while 59 seconds are required to absorb the information.

When interviewed, visitors said that they had not stopped at the text or the map because they had not noticed the panels. Even those who had seen the panels did not stop because they did not find them attractive enough, or because they were not seen until the end of the visit.

From the cognitive testing, it was discovered that visitors are unable to correctly identify the main theme of the exhibit after their tour. Since the two introductory panels present the main theme, as well as providing a framework in which the displays are to be viewed, these results point out a serious problem that merits investigation.

Possible solutions that could be evaluated are: a) to move the introductory material into the main hall of the exhibit where visitors tend to stop more, and b) to accompany the information with specimens because visitors are attracted by, and induced to read about, a display's specimens.

## IV. Visitor Use of Exhibit - as Hallway of Display Area

| |
|---|
| The exhibit is used as a display area when visitors first enter the floor, as well as a hallway, when visitors exit the floor after touring both exhibits. |

Most visitors (82%) see the Birds in Canada exhibit in two parts: the first viewing begins at the front entrance and continues through to the Mammals in Canada exhibit; the second viewing starts at the back entrance (i.e. the exit from the Mammals in Canada exhibit) and continues through to the front entrance of the Birds in Canada exhibit.

During the first trip, visitors use the exhibit as a display area, and during the return trip, as a hallway. The Exhibit Staying Time for the first trip is 3.6 minutes, while for the second, it is only 1.3 minutes. Additionally, an average number of 6.6 stops are made during the first visit, but an average of only 1.3 are made during the second. More revealing is the fact that over half (56%) of the visitors do not stop at all during the return trip.

This phenomenon may be explained by the finding that visitors use the

same route for both trips and, thus, feel as though they have already seen what is presented: 75% of all visitors walk along the south wall towards the Mammals in Canada exhibit, and 78% return along the same wall.

The use of this path by most visitors has another effect of causing the north half of the exhibit to be missed. Perhaps the exhibit should be organized so that important concepts are presented along the south wall and higher levels of interpretation along the north wall.

## V. Effectiveness of the Film: Gannets on Bonaventure Island

> The film is quite effective in that visitors generally find it worthwhile and tend to stay until near completion; however, very few visitors actually see the film because the entrance to the cinema is not attracting them inside.

From both the observational and the interview data, it was found that the cinema is entered by only 32% of all visitors. Of those who do enter, approximately half (53%) watch Gannets on Bonaventure Island and half (47%) see the film related to the Mammals in Canada exhibit. Thus, about 15% of all visitors watch Gannets on Bonaventure Island.

The low entry rate into the cinema is not a result of visitors failing to see the entrance. When visitors were asked why they had not watched either of the two films, only 11% said they had not noticed the theatre. Nor is the low attentance a function a the particular film being shown nor of the language of the film. Only 2% and 8% (respectively) of visitors who had entered the theatre gave these reasons.

Since most visitors see the cinema (89%) but do not enter, it appears that the entrance lacks attraction power. This is not surprising as the entrance is a narrow doorway, over which a small plexiglass sign marked simply " Cinema " extends from the wall.

The major reason offered by the visitors for not watching the two films were that: a) they were in a hurry to see the museum (47%), and b) they wanted to keep moving (13%). This tendency to hurry through the museum is to be expected as most visitors during the summer months, the period when this evaluation was conducted, are tourists. However, it also

poses a problem in that visitors are not inclined to stop frequently in their hasty tour; and perhaps are even predisposed not to stop unless a display looks extremely interesting.

With this in mind, redesigning the entrance of the cinema in order to attract more visitors may prove to be difficult, given the present location. It may even be undesirable to do so. Visitors can not be expected to stop at everything while touring a fairly large museum. Therefore, it must be decided whether the content presented in the film is important enough to warrant increasing its attendance, which could have the possible effect of drawing visitors away from other parts of the exhibit.

One last remark should be made concerning the holding power of the film. The average viewing time for the film is 2.5 minutes, or the approximate length of one film. That visitors are staying until near completion is an indication of a fair degree of success. Furthermore, a substantial number of visitors responded favourably, when asked for their opinion of the film: 57% said that it was informative and the subject matter of good quality; 3% found the camera work to be good; and 3% liked its short length. Most criticism was directed towards technical aspects (31%) rather than the film content (6%): 17% were annoyed by the poor sound quality; and 14% thought the visual quality poor due to the old age of the film.

For complete results of the interview, see Appendix A - 1.

## Appendix A

Appendix A-1 Results of interview ... 14

Appendix A-2 Results of Cognitive Testing ... 22

Appendix A - 1 Results of the Interview

1. Why did tou come to the Birds in Canada exhibit ?

| | | |
|---|---|---|
| Part of a general visit to the museum | 73.3 % | 180 respondents |
| Came to the museum specifically to see the exhibit | 6.9 | 17 |
| Was in the museum but made a point of seeing the exhibit | 17.1 | 42 |
| Used exhibit as hallway | 2.9 | 7 |

2. Did you see the introductory information at the entrance to this exhibit ?

| | | |
|---|---|---|
| Yes | 24.1 | 61 |
| No | 75.9 | 192 |

If YES, What information are you referring to ?

| | | |
|---|---|---|
| Text only | 67.6 | 25 |
| Map only | 16.2 | 6 |
| Text and Map | 16.2 | 6 |

If YES, Did you use the information ?

| | | |
|---|---|---|
| Yes | 26.4 | 14 |
| No | 73.6 | 39 |

If YES, How did you use the information ?

| | | |
|---|---|---|
| Properly | 80.0 | 12 |
| Improperly | 20.0 | 3 |

If NO, Why didn't you use the information ?

| | | |
|---|---|---|
| Did not attract me | 43.9 | 18 |
| Saw it at the end of my visit | 33.3 | 14 |
| Did not want to read | 11.9 | 5 |
| Appeared to be unrelated to exhibit | 7.1 | 3 |
| Read it on a previous visit | 4.8 | 2 |

2b. If map is not mentioned above:
Did you see the map at the entrance to this exhibit ?

| | | |
|---|---|---|
| Yes | 38.8 | 95 |
| No | 61.2 | 150 |

If YES, Did you use the map ?

| | | |
|---|---|---|
| Yes | 21.4 | 21 |
| No | 78.6 | 77 |

If YES, How did you use the map ?

| | | |
|---|---|---|
| Properly | 77.3 | 17 |
| Improperly | 22.7 | 5 |

2b. continued

If NO, Why didn't you use the map ?

| | | |
|---|---|---|
| Did not try/Did not attract me | 40.0 | 24 |
| Under time constraint | 21.7 | 13 |
| Saw it at the end of my visit | 20.0 | 12 |
| Did not understand how to use it | 6.7 | 4 |
| Did not perceive a use for it | 5.0 | 3 |
| Was with children | 5.0 | 3 |
| Too many people in front it | 1.5 | 1 |

3. Did you prefer the glass cases in the middle of the room, the displays along the wall, or did you have no preference ?

| | | |
|---|---|---|
| Traditional | 58.1 | 148 |
| Modern | 18.8 | 48 |
| No preference | 23.1 | 59 |

If Modern, Why did you prefer the glass displays ?

| | | |
|---|---|---|
| Can be seen from different sides/Are three sided | 42.9 | 24 |
| More realistic habitat | 25.0 | 14 |
| Birds are more visible | 12.5 | 7 |
| More detailed | 8.9 | 5 |
| Felt drawn towards them more | 7.1 | 4 |
| Better lighting | 1.8 | 1 |
| More modern | 1.8 | 1 |

If Traditional, Why did you prefer th wall displays ?

| | | |
|---|---|---|
| More realistic | 45.2 | 98 |
| Liked the artwork in the backgrounds | 14.3 | 31 |
| More " eye-catching " | 10.2 | 22 |
| Have more sense of depth | 8.8 | 19 |
| More spacious | 8.3 | 18 |
| Felt more a part of the habitat | 4.2 | 9 |
| Birds are more visible | 2.8 | 6 |
| Did not have to walk around display | 2.3 | 5 |
| Cleaner | 1.4 | 4 |
| Better lighting | 1.4 | 4 |
| Have less specimens | .9 | 2 |
| Liked the specimens better | .5 | 1 |

4. Did you read any of the information ?

| | | |
|---|---|---|
| Yes | 86.6 | 219 |
| No | 13.4 | 34 |

If YES, How much did you read ?

| | | |
|---|---|---|
| Little of what I saw | 34.8 | 77 |
| Half | 34.4 | 76 |
| Most of what I saw | 30.8 | 68 |

4. continued

If YES, What attracted you to read ?

| | | |
|---|---|---|
| Specimens | 25.5 | 56 |
| Unfamiliar specimens | 18.6 | 41 |
| Stopped randomly/Could not remember | 17.7 | 39 |
| Entire display | 9.1 | 20 |
| Looked for specific information | 9.1 | 20 |
| Reinforce previous knowledge of particular species | 6.4 | 14 |
| Scenery of display | 5.9 | 13 |
| Information | 5.4 | 12 |
| Photograph of bird on label | 2.3 | 4 |

If NO, Why didn't you read ?

| | | |
|---|---|---|
| Under time constraint | 45.5 | 10 |
| Displike reading | 27.3 | 6 |
| Did not see anything new | 18.2 | 4 |
| Was watching children | 4.6 | 1 |
| Too tired | 4.6 | 1 |

5. What do you think of the quality or type of information presented ?

| | | |
|---|---|---|
| Adequate | 81.3 | 182 |
| Inadequate | 18.8 | 42 |

If INADEQUATE, Why did you find it inadequate ?

| | | |
|---|---|---|
| Not informative/Descriptive/Factual enough | 50.0 | 21 |
| Not enough information on bird behaviour | 28.6 | 12 |
| Not enough information on individual species | 16.7 | 7 |
| Too detailed for children | 3.9 | 2 |

If ADEQUATE, Why did you like the information presented ?

| | | |
|---|---|---|
| Informative | 51.1 | 70 |
| Not too detailed for the average person | 38.7 | 53 |
| Good for children | 3.7 | 5 |
| Easy to read | 2.9 | 4 |
| Photographs are a good idea | 2.2 | 3 |
| Map gave perspective | 1.5 | 2 |

6. What do you think of the amount of information presented ?

| | | |
|---|---|---|
| Adequate | 82.4 | 178 |
| Not enough | 15.7 | 34 |
| Too much | 1.9 | 4 |

7. What do think of the way the information is presented ?

| | | |
|---|---|---|
| Adequate | 85.9 | 207 |
| Inadequate | 14.1 | 34 |

7. continued

If ADEQUATE, Why did you like the presentation ?

| | | |
|---|---|---|
| Clear and easy to read/understand | 69.4 | 101 |
| Good lighting | 16.9 | 27 |
| Map at each display is helpful | 10.0 | 16 |
| Text explains displays well | 1.3 | 2 |
| Attractive | 1.9 | 3 |

If INADEQUATE, Why didn't you like the presentation ?

| | | |
|---|---|---|
| Exhibit too dark to read | 32.4 | 11 |
| Glare off glass made difficult to read | 17.7 | 6 |
| Labels poorly lit | 14.7 | 5 |
| Displays too dark | 11.8 | 4 |
| Print too small | 11.8 | 4 |
| Difficult to read with bifocals | 8.8 | 3 |
| Topics should be divided into paragraphs | 2.9 | 1 |

8. What do you think of the placement of the labels ?

| | | |
|---|---|---|
| Good as they are | 69.4 | 175 |
| Need to be changed | 30.6 | 77 |

If GOOD, Why did you like the placement ?

| | | |
|---|---|---|
| Good hight | 40.7 | 57 |
| Easily visible | 39.3 | 55 |
| Centrally located on display | 11.4 | 16 |
| Good hight for children | 7.9 | 11 |
| Slanted angle is good | .7 | 1 |

If NEED FOR CHANGE, Why didn't you like the placement ?

| | | |
|---|---|---|
| Too low | 66.2 | 51 |
| Too far way from barrier of display | 18.2 | 14 |
| Should be duplicated at both sides of display | 9.1 | 7 |
| Too much information on one side | 3.9 | 3 |
| Too centrally located | 2.6 | 2 |

9. What is your opinion about the number of birds ib any of the displays ?

| | | |
|---|---|---|
| Adequate | 69.7 | 163 |
| Too many | 23.9 | 56 |
| Too few | 5.1 | 12 |
| Some places have too many, some too few | 1.3 | 3 |

If TOO FEW or TOO MANY, Does this affect your reaction to the display ?

| | | |
|---|---|---|
| Yes | 60.4 | 58 |
| No | 39.6 | 38 |

If YES, In what way ?

| | | |
|---|---|---|
| Did not stay as long as might have due to frustration | 45.5 | 5 |
| Made it difficult to identify specimens | 54.5 | 6 |

10. Were you able to locate the birds by using the pictures on the labels ?

| | | |
|---|---|---|
| Yes | 65.6 | 143 |
| No | 21.6 | 47 |
| Yes, but with difficulty | 12.8 | 28 |

If NO or WITH DIFFICULTY, Why ?

| | | |
|---|---|---|
| Photographs too small | 32.4 | 33 |
| Photographs do not resemble specimens | 27.5 | 28 |
| Position/Too low | 11.8 | 12 |
| Lighting too dim | 11.8 | 12 |
| Lack of sequencing of photos and birds | 9.8 | 10 |
| Birds are hidden from view | 3.9 | 4 |
| Photographs are too similar to one another | 2.9 | 3 |

If NO or WITH DIFFICULTY, What would make it easier ?

| | | |
|---|---|---|
| Use larger photographs | 27.0 | 24 |
| Number birds to correspond to photos and names | 17.0 | 16 |
| Label birds themselvs | 10.1 | 9 |
| Use more accurate photographs | 8.9 | 8 |
| Sequence specimens and photographs | 8.9 | 8 |
| Use silouettes of displays | 6.7 | 6 |
| Clean birds | 5.6 | 5 |
| Place specimens closer to viewer | 4.5 | 4 |
| Describe specimens more fully | 3.4 | 3 |
| Use photograph of actual displays | 2.2 | 2 |
| Duplicate labels, place on each side of display | 1.1 | 1 |
| Increase lighting | 1.1 | 1 |

11. Did you learn anything new from this exhibit ?

| | | |
|---|---|---|
| Yes | 78.3 | 198 |
| No | 21.7 | 55 |

If NO, Why didn't you learn anything ?

| | | |
|---|---|---|
| Knew most of the information already | 34.6 | 18 |
| Was not interested | 17.3 | 9 |
| Was seeing exhibit for enjoyment only | 26.9 | 14 |
| Have seen exhibit before | 13.5 | 7 |
| Under time constraint | 3.9 | 2 |
| Exhibit had nothing to offer | 1.9 | 1 |
| Used exhibit as hallway | 1.9 | 1 |

12. Explain, if you can, what theme or ideas this exhibit is trying to communicate ?

| | | |
|---|---|---|
| To display birds of Canada in the theirdifferent regions | 27.1 | 26 |
| To show birds of Canada (more general) | 22.9 | 22 |
| To show birds in their natural habitats | 29.2 | 28 |
| Conservation/Protection of wildlife | 9.4 | 9 |
| Increase appreciation of bird life | 5.2 | 5 |
| To show wildlife diversity | 1.0 | 1 |
| Saw no theme | 5.2 | 5 |

13. Did you watch any of the films ?

| | | |
|---|---|---|
| Yes | 32.0 | 80 |
| No | 68.0 | 179 |

If NO, Why didn't you watch them ?

| | | |
|---|---|---|
| Under time constraint | 46.9 | 69 |
| Not interested | 14.3 | 21 |
| Wanted to keep moving | 12.9 | 19 |
| Did not notice theatre | 10.9 | 16 |
| Film showing was in wrong language | 8.2 | 12 |
| Too crowded in theatre | 2.0 | 3 |
| Did not want to see that film, wanted to see the other | 2.0 | 3 |
| Too cold in theatre | 1.4 | 2 |
| Was with children | .7 | 1 |
| Attracted to Mammals in Canada first | .7 | 1 |

If YES, What film(s) did you see ?

| | | |
|---|---|---|
| Gannets on Bonaventure Island - English | 28.4 | 25 |
| Gannets on Bonaventure Island - French | 14.8 | 13 |
| I'm a Mammal, So Are You - English | 45.5 | 40 |
| I'm a Mammal, So Are You - French | 11.4 | 10 |

If YES, What did you think of the film(s) ?

Mammals:

| | | |
|---|---|---|
| Positive comments | 50.9 | 30 |
| Interesting/Informative | 50.0 | 30 |
| Catchy tune | 10.2 | 6 |
| Baby animals were cute | 1.7 | 1 |
| Was to point | 1.7 | 1 |
| Negative comments | | |
| Sound was of poor quality | 17.0 | 10 |
| Hard to grasp point | 13.6 | 8 |
| Film was poor visually due to age | 1.7 | 2 |
| Geared to much to children | 3.4 | 2 |

Birds:

| | | |
|---|---|---|
| Positive comments | | |
| Interesting/Informative | 57.1 | 20 |
| Good camera work | 2.9 | 1 |
| Nice and short for children | 2.9 | 1 |
| Negative comments | | |
| Sound quality was poor | 17.1 | 6 |
| Film was out of focus/too old | 14.3 | 5 |
| Boring/Uniformative | 2.9 | 1 |
| Too long | 2.9 | 1 |

14. Did you like the Birds in Canada exhibit ?

| | | |
|---|---|---|
| Yes | 93.3 | 237 |
| No | 6.7 | 17 |

If YES, What did you like about it ?

| | | |
|---|---|---|
| Presentation of displays | 30.0 | 82 |
| Realistic | 23.4 | 64 |
| Specific dioramas mentioned | 13.6 | 37 |
| Variety of species | 9.5 | 26 |
| Specimens | 8.1 | 22 |
| Traditional dioramas | 4.0 | 11 |
| Artwork on backgrounds | 2.6 | 7 |
| Information | 2.2 | 6 |
| Maps on labels | .4 | 1 |
| Miscellaneous | 6.2 | 17 |

15. If you were given the opportunity to redesign your own Birds in Canada exhibit, what changes, if any, would you make ?

| | | |
|---|---|---|
| No changes | 47.4 | 109 |
| Changes | | |
| Include bird calls at each display | 30.0 | 18 |
| Include other settings in which birds are found | 11.7 | 7 |
| Add more species that are also representative of Canadian birds ( such as the eagle ) | 10.0 | 6 |
| Provide directional cues or guides | 6.6 | 4 |
| Redesign so that there is only one route | 6.6 | 4 |
| Present or discuss predators | 6.6 | 4 |
| Increase lighting, needs to be brighter | 6.6 | 4 |
| Add more information about endangered, extinct species | 5.0 | 3 |
| Contrast the birds on a lighter background | 5.0 | 3 |
| Design an attractive and bright display for the entrance to explain the exhibit | 3.3 | 2 |
| Use only outer walls for displays | 3.3 | 2 |
| Include more unfamilar species | 3.3 | 2 |
| Include live birds | 3.3 | 2 |
| Miscellaneous | 16.0 | 10 |

Demographics

1. What is your age group ?

| | | |
|---|---|---|
| Under 13 | 4.7 | 12 |
| 14 - 17 | 8.3 | 21 |
| 18 - 24 | 20.5 | 52 |
| 25 - 39 | 38.2 | 97 |
| 40 - 64 | 21.7 | 55 |
| 65 or over | 6.7 | 17 |

2. What is your sex ?

| | | |
|---|---|---|
| Male | 57.7 | 138 |
| Female | 42.3 | 101 |

3. Where do you reside ?

| | | |
|---|---|---|
| Ottawa/Hull region | 35.6 | 90 |
| Tourist | 64.4 | 163 |

4. How many are in your group ?

| | | |
|---|---|---|
| One | 15.0 | 35 |
| Two | 35.8 | 84 |
| Three | 15.8 | 37 |
| Four | 18.3 | 43 |
| Five | 6.8 | 16 |
| Six | 5.1 | 12 |
| Seven | 2.6 | 6 |
| Eight or more | .9 | 2 |

5. What level of formal education are you pursuing or have attained ?

| | | |
|---|---|---|
| Primary | 5.3 | 13 |
| Secondary | 26.0 | 64 |
| Some university/Bachelors degree | 16.3 | 40 |
| Masters degree | 22.8 | 56 |
| Doctorate degree/Post doctorate work | 12.2 | 30 |
| College/Technical/3 Year CEGEP | 17.5 | 43 |

If applicable, what was or is your specialization ?

| | | |
|---|---|---|
| Social Sciences | 25.7 | 19 |
| Technical | 24.3 | 18 |
| Science/Applied Science | 23.0 | 17 |
| Education | 9.5 | 7 |
| Commerce/Business Administration | 6.8 | 5 |
| Fine Arts | 6.8 | 5 |
| Humanities | 4.1 | 3 |

6. Is this your first visit to this exhibit ?

| | | |
|---|---|---|
| Yes | 63.8 | 162 |
| No | 36.2 | 92 |

If this is <u>not</u> your first visit, how many times have you been here before ?

| | | |
|---|---|---|
| Once | 10.3 | 8 |
| Twice | 20.5 | 16 |
| Three | 29.5 | 23 |
| Four | 12.8 | 10 |
| Five | 10.3 | 8 |
| Six | 2.6 | 2 |
| Seven | 2.6 | 2 |
| Eight or more | 11.5 | 9 |

## Results of the Cognitive Testing

| Question Number | Topic | Pre-test Mean | Post-test Mean | Difference | t | Significant Increase |
|---|---|---|---|---|---|---|
| 1 | Main Theme | 69 | 80 | 11 | 1.8 | No |
| 2 | Migration | 53 | 45 | - 8 | -1.1 | No |
| 3 | Eastern Hardwoods | 85 | 71 | -14 | -2.4 | No |
| 4 | Main Theme | 59 | 71 | 12 | 1.8 | No |
| 5 | Western Mountains | 67 | 62 | - 5 | - .8 | No |
| 6 | Prairie Marsh | 72 | 74 | 2 | .3 | No |
| 7 | Pacific Coast | 37 | 50 | 23 | 1.9 | No |
| 8 | Arctic Tundra | 74 | 65 | - 9 | -1.4 | No |
| 9 | Atlantic Coast | 63 | 77 | 14 | 2.2 | Yes |
| 10 | Grasslands | 71 | 43 | -28 | -4.2 | No |
| 11 | Eastern Hardwoods | 71 | 28 | -43 | -6.8 | No |
| 12 | Prairie Marsh | 58 | 93 | -35 | 6.3 | Yes |
| 13 | Pacific Ocean | 61 | 41 | -20 | -2.9 | No |
| 14 | Pacific Coast | 44 | 50 | 6 | .9 | No |
| 15 | Western Mountains | 41 | 50 | 9 | 1.3 | No |
| 16 | Atlantic Coast | 20 | 50 | 30 | 4.7 | Yes |
| 17 | Eastern Hradwoods | 60 | 65 | 5 | .7 | No |
| 18 | Prairie Marsh | 85 | 71 | 14 | 2.4 | Yes |
| 19 | Main Theme | 82 | 86 | 4 | .8 | No |
| 20 | Atlantic Coast | 67 | 82 | 15 | 2.5 | Yes |
| 21 | Artic Tundra | 67 | 66 | - 1 | .2 | No |

| Question Number | Topic | Pre-test Mean | Post-test Mean | Difference | t | Significant Increase |
|---|---|---|---|---|---|---|
| 22 | Pacific Ocean | 44 | 51 | 7 | 1.0 | No |
| 23 | Arctic Tundra | 51 | 48 | - 3 | - .4 | No |
| 24 | Grasslands | 35 | 39 | 4 | .6 | No |
| 25 | Western Mountains | 32 | 55 | 23 | 3.4 | Yes |
| 26 | Eastern Hardwoods | 55 | 52 | 7 | 1.0 | No |
| 27 | Pacific Coast | 78 | 69 | - 9 | -1.5 | Yes |
| 28 | Deciduous Forest | 28 | 34 | 8 | .9 | No |
| 29 | Pacific Ocean | 79 | 81 | 2 | .4 | No |
| 30 | Western Mountains | 28 | 37 | 9 | 1.4 | No |
| 31 | Migration | 79 | 83 | 4 | .7 | No |



Scores averaged over all test items

Pre-test Mean: 17.6 items or 56.8 %

Post-test Mean: 18.8 items or 60.7 %

Difference: 1.2 items or 3.9 %

" t " = .42, no significant increase

## Appendix B


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Appendix B - 1 Description of Data Collection Methods

I. Path, Attraction Power, Holding Power, Exhibit Staying Time

Birds in Canada Data Collection Sheet: Set I

Sample No:_____ Date:_____ Observer:_____

Group Size:_____ Group Type: A C B Time In:_____

Path:_____

Stops/Length:___( : ) etc_____

Time Out:_____ Exhibit Staying Time:_____

Group Size, Group Type ( adult, child, or both ), and Time In were recorded when each visitor entered the exhibit.

For the purposes of monitoring Path, the exhibit was divided into sections that were assigned different letters. These letters were then used to record the sequence in which a visitor toured the exhibit.

In order to note at which display a visitor stopped, each display was given a different number. When a visitor stopped to look at a display, the appropriate number was recorded.

The length of each stop was timed with a stop watch and written next to the corresponding display number.

Time Out was was recorded when a visitor exited. Exhibit Staying Time was then calculated by subtracting Time In from Time Out.

II. Behaviour at Displays

Birds in Canada Data Collection Sheet: Set II

Sample No:_____ Date:_____ Observer:_____

Group Size:_____ Group Type: A C B Time In:_____

Time Out:_____ Exhibit Staying Time:_____

| Display No. | Behaviour | | | | | Display No. | Behaviour | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | 8 | | | | | |
| 2 | | | | | | 9 | | | | | |
| 3 | | | | | | 10a | | | | | |
| 4 | | | | | | 10b | | | | | |
| 5a | | | | | | 10c | | | | | |
| 5b | | | | | | 11 | | | | | |
| 5c | | | | | | 12 | | | | | |
| 6a | | | | | | 13 | | | | | |
| 6b | | | | | | 14 | | | | | |
| 6c | | | | | | 15 | | | | | |
| 7 | | | | | | | | | | | |

Group Size, Group Type, and Time In were recorded when each visitor entered.

Recording Behaviour at Displays entailed placing either an S, for specimens, or an L, for labels, in the first box next to the corresponding number for the display at which a visitor stopped. This indicated where in the display a visitor

looked first. If attention was then shifted to the other component, either and S or an L was enetered in the second box. No more than two such sequences of S-L or L-S were recorded.

Appendix B - 2 Sample of Interview

1. Why did you come to the Birds in Canada exhibit ?

- ☐ part of a general visit
- ☐ came to the museum specifically to see the exhibit
- ☐ was in the museum but made a point of seeing the exhibit
- ☐ used it as a hallway
- ☐ no answer

2. Did you see the introductory information at the entrance to this exhibit ?

- ☐ yes
- ☐ no
- ☐ no answer

If YES, What information are you referring to ?

- ☐ text only
- ☐ map only
- ☐ text and map
- ☐ no answer

If YES, Did you use the information?

- ☐ yes
- ☐ no
- ☐ no answer

How did you use the information ?

- ☐ properly
- ☐ improperly
- ☐ no answer

Why didn't you use the information ?

- ☐ did not attract me
- ☐ did not want to read
- ☐ saw it at the end of my visit
- ☐ other _____
- ☐ no answer

3. If map is not mentioned above:
Did you see the map at the entrance to this exhibit ?

- ☐ yes
- ☐ no
- ☐ no answer

If YES, Did you use the map ?

- ☐ yes
- ☐ no
- ☐ no answer

In what way ?

- ☐ properly
- ☐ improperly
- ☐ no answer

Why didn't you use it ?

- ☐ time constraint
- ☐ with children
- ☐ did not try to
- ☐ saw it at the end of my visit
- ☐ did not understand how
- ☐ other _____
- ☐ no answer

4. Did you prefer the glass cases in the middle of the room, the displays along the wall, or neither ?

- ☐ modern
- ☐ traditional
- ☐ neither
- ☐ no answer

If MODERN, Why did you prefer the glass displays ?

- ☐ they are three - sided; can be seen from any angle
- ☐ birds are more visible
- ☐ felt drawn towards them
- ☐ more realistic habitat
- ☐ better lighting
- ☐ other _____
- ☐ no answer

If TRADITIONAL, Why did you prefer the wall displays ?

- ☐ more realistic
- ☐ more spacious
- ☐ the sense of depth
- ☐ more " eye - catching "
- ☐ cleaner
- ☐ for the artwork in the backgrounds
- ☐ better lighting ?
- ☐ felt more a part of the habitat
- ☐ birds are more visible
- ☐
- ☐ less specimens
- ☐ other _____
- ☐ no answer

5. Did you read any of the information ?

- ☐ yes
- ☐ no ( skip 6 & 7 )
- ☐ no answer

If YES, How much did you read ?

- ☐ most
- ☐ half
- ☐ little
- ☐ no answer

If YES, What attracted you to read ?

- ☐ specimen(s)
- ☐ whole display
- ☐ information
- ☐ the unfamilar
- ☐ the scenery
- ☐ photograph of bird on label
- ☐ to reinforce previous knowledge
- ☐ in exhibit for specific info.
- ☐ for general knowledge
- ☐ other _____
- ☐ no answer

If NO, Why didn't you read ?

- ☐ didn't see anything new
- ☐ under time constraint
- ☐ too tired
- ☐ dislike to read
- ☐ other _____

6. What do you think of the quality or type of information presented ?

- ☐ adequate
- ☐ inadequate
- ☐ no answer

If INADEQUATE, Why did you find it inadequate ?

- ☐ not enough species from this region
- ☐ not enough individual species
- ☐ not informative enough; not descriptive or factual enough
- ☐ not enough information on behaviour
- ☐ other _____
- ☐ no answer

If ADEQUATE, Why did you like the information presented ?

- ☐ not too detailed for the average person
- ☐ only read what interested me most
- ☐ map added to quality
- ☐ informative
- ☐ other _____
- ☐ no answer

7. What did you think of the amount of information presented ?

- ☐ adequate
- ☐ not enough
- ☐ too much
- ☐ no answer

8. What do you think of the way the information in presented ?

- ☐ adequate
- ☐ inadequate
- ☐ no answer

If ADEQUATE, Why did you like the presentation ?

- ☐ map at each display is a good idea
- ☐ it was clear to read
- ☐ good lighting
- ☐ easy to understand
- ☐ other _____
- ☐ no answer

If INADEQUATE, Why didn't you like the presentation ?

- ☐ glare off glass
- ☐ labels poorly lit
- ☐ exhibit too dark
- ☐ layout not sequential
- ☐ other _____
- ☐ wear bifocals
- ☐ the topics should be divided consistently into separate paragraphs
- ☐ no answer

9. What do you think of the placement of the labels ?

- ☐ adequate
- ☐ inadequate
- ☐ no answer

If ADEQUATE, Why did you like the placement ?

- ☐ easily visible
- ☐ good height
- ☐ good height for children
- ☐ no answer
- ☐ centrally located
- ☐ when labels are duplicated
- ☐ other _____

If INADEQUATE, Why didn't you like the placement ?

- ☐ too far away from the barrier
- ☐ should be duplicated
- ☐ too low
- ☐ too near the center
- ☐ other _____
- ☐ no answer

10. What is your opinion about the number of birds presented in any of the displays displays ?

☐ too many ☐ half & half ☐ no answer
☐ too few ☐ adequate

If TOO FEW or TOO MANY in some areas ask visitor to show you WHERE if possible. _____

If TOO FEW or TOO MANY, Does this effect your reaction to the display ?

☐ yes
☐ no
☐ no answer

If YES, In what way ?

TOO FEW: _____
TOO MANY: _____

11. Were you able to loacate the birds using the pictures on the labels ?

☐ yes
☐ no
☐ yes but with difficulty

If NO, or WITH DIFFICULTY, Why ?

☐ pictures are too small
☐ lighting is poor
☐ no sequence to pictures or labels
☐ pictures look different than specimens
☐ position of label makes it hard to use
☐ other _____
☐ no answer

If NO, or WITH DIFFICULTY, What would make it easier ?

☐ name birds
☐ number birds
☐ enlarge pictures
☐ change to sillouette
☐ clean birds
☐ other _____
☐ use picture of display on label
☐ place pictures at eye level
☐ sequence specimens and labels
☐ use more accurate pictures
☐ no answer

12. Did you learn anything new from this exhibit ?

- ☐ yes
- ☐ no
- ☐ no answer

If NO, Why didn't you learn anything new ?

- ☐ knew most of the information already
- ☐ have seen exhibit before
- ☐ exhibit had nothing to offer
- ☐ not interested
- ☐ here for enjoyment only
- ☐ under time constraint
- ☐ other _____
- ☐ no answer

13. Explain, if you can, what theme or ideas you think this exhibit is trying to communicate.

- ☐ no answer

_____

_____

14. Did you watch any of the films ?

- ☐ yes
- ☐ no
- ☐ no answer

If NO, Why didn't you watch them ?

- ☐ did not notice cinema
- ☐ was under time constraint
- ☐ wanted to keep moving
- ☐ was not interested
- ☐ wanted to see the other film
- ☐ wrong language
- ☐ other _____
- ☐ no answer

If YES, What film(s) did you see ?

- ☐ Gannets on Bonaventure Island - English
- ☐ Gannets on Bonaventure Island - French
- ☐ I'm a Mammal, So Are You - English
- ☐ I'm a Mammal, So Are You - French
- ☐ no answer, could not remember

If YES, What did you think of the film(s) ?
Mammals:

- ☐ good/interesting
- ☐ catchy tune
- ☐ sound was poor
- ☐ hard to grasp point
- ☐ other _____
- ☐ no answer

Gannets:

- ☐ good/interesting
- ☐ sound was poor
- ☐ quality of film was poor due to age
- ☐ other _____
- ☐ no answer

15. Did you like the Birds in Canada exhibit ?

- ☐ yes
- ☐ no
- ☐ no answer

If NO, Why didn't you like it ?

- ☐ not attractive
- ☐ too cluttered
- ☐ not enough information
- ☐ specimens not outstanding
- ☐ other _____
- ☐ no answer

If YES, What did you like about it ?

- ☐ realistic
- ☐ overall presentation of displays
- ☐ the variety in birds
- ☐ specimens themselvs
- ☐ information
- ☐ maps on labels
- ☐ other _____
- ☐ no answer

16. If you were given the opportunity to design your own " Birds in Canada " exhibit, what changes would you make ?

- ☐ none
- ☐ some
- ☐ no answer

If SOME: _____

_____

Demographics

1. What is your age group ? ( the remainder is handed to the respondent )

☐ under 13 ☐ 18 - 24 ☐ 40 - 64
☐ 14 - 17 ☐ 25 - 39 ☐ 65 or over

2. What is your sex ?

☐ Male ☐ Female

3. Where do you reside ?

☐ Ottawa/Hull region
☐ Other; please specify _____

4. How many are in your group ? _____

5. What level of formal education are you pursuing or have attained ?

☐ Primary school
☐ Secondary
☐ Some University/2 Year CEGEP
☐ Bachelors degree
☐ Masters degree
☐ College/Technical/3 Year CEGEP
☐ Doctorate degree or Post doctorate work

If applicable, what was or is your specialization ? _____

6. Is this your first visit to this exhibit ?

☐ Yes ☐ No

If this is <u>not</u> your first visit, how many times have you been before ? ____

Appendix B - 3

Sample of Quiz

1. For the most part, bird species found in Canada are unique to each of the bio - geographic zones. T F
2. Fewer than half of the bird species found in Canada migrate south for the winter. T F
3. Many species of birds in the Eastern Hardwood Forest region have been reduced in numbers because of forest clearing. T F
4. Most species of birds in Canada are found in all of the country's regions. T F
5. There are many different species of birds in the Western Mountains region because ofthe diversity of vegetation. T F
6. The Prairie Marshes are densely populated with birds. T F
7. The Pacific Coast region has the most diversity of bird types in Canada. T F
8. Several species of birds live on the Arctic Tundra all year. T F
9. Gannets breed on the Atlantic coastal cliffs. T F
10. The grouse migrates to the Grasslands to breed. T F
11. Some birds in the Eastern Hardwoods have increased in numbers because of forest clearing. T F
12. There are many different types of birds in the Prairie Marshes. T F
13. Ocean birds are over the water for short periods to find food and then they return to land where they spend most of their time. T F
14. Despite the fact that the Pacific Coast offers an abundant food supply, there is relatively little diversity in bird fauna. T F
15. One of the reasons there are many different species of birds in the Western Mountains region is the steep increase in altitude. T F
16. Gannets nest in small groups during breeding season. T F
17. Most species of birds found in the Eastern Hardwood Forest region migrate south for the winter. T F
18. The Prairie Marsh region is notable for its high reproduction rate of bird populations. T F
19. Different plant zones in Canada provide breeding and living areas for different types of birds. T F
20. Several species found along the Atlantic Coast nest on cliffs in densely populated colonies. T F
21. On the Arctic Tundra, some bird species densely populate many areas during breeding season. T F
22. Ocean birds use land only to breed. T F
23. The snow goose is found on the Arctic Tundra only for a short breeding season. T F
24. During courtship, several female grouse try to attract the attention of a male. T F

25. One of the causes of the wide diversity on the bird populations of the Western Mountains is the variation in temperatures. T F

26. In the Eastern Hardwoods, little industrialization has occured and therefore, the bird fauna has remained largely unaffected. T F

27. The Pacific coast provides more than adequate rest places for birds. T F

28. The majority of birds found in the deciduous forests of Southern Ontario are also common in other, more northern forests of Canada. T F

29. Ocean birds feed on squid and fish. T F

30. One of the causes of the wide diversity in birds of the Western Mountian region is the abundance of food. T F

31. Migration is induced by climate, food supply, and physiological responses. T F

Have you ever visited the Birds in Canada exhibit before ?

YES NO

If you have, how many times _____, and when was the last time you were there ( in months ) _____ ?

Demographic Information

1. What is your age group ?

| | | |
|---|---|---|
| ___ under 13 | ___ 18 - 24 | ___ 40 - 64 |
| ___ 14 - 17 | ___ 25 - 39 | ___ 65 or over |

2. What level of formal education are you pursuing or have attained ?

| | |
|---|---|
| ___ Primary | ___ Some university/2 year CEGEP |
| ___ Secondary | ___ College/Technical/3 year CEGEP |
| ___ Undergraduate degree | ___ Masters degree |
| | ___ Doctorate/Post Doctorate |

3. Male Female

4. If applicable, what is or what was your specialization ? _____

## Appendix C

### List of Displays and Accompanying Texts

Appendix C - 1

List of Displays and Accompanying Texts

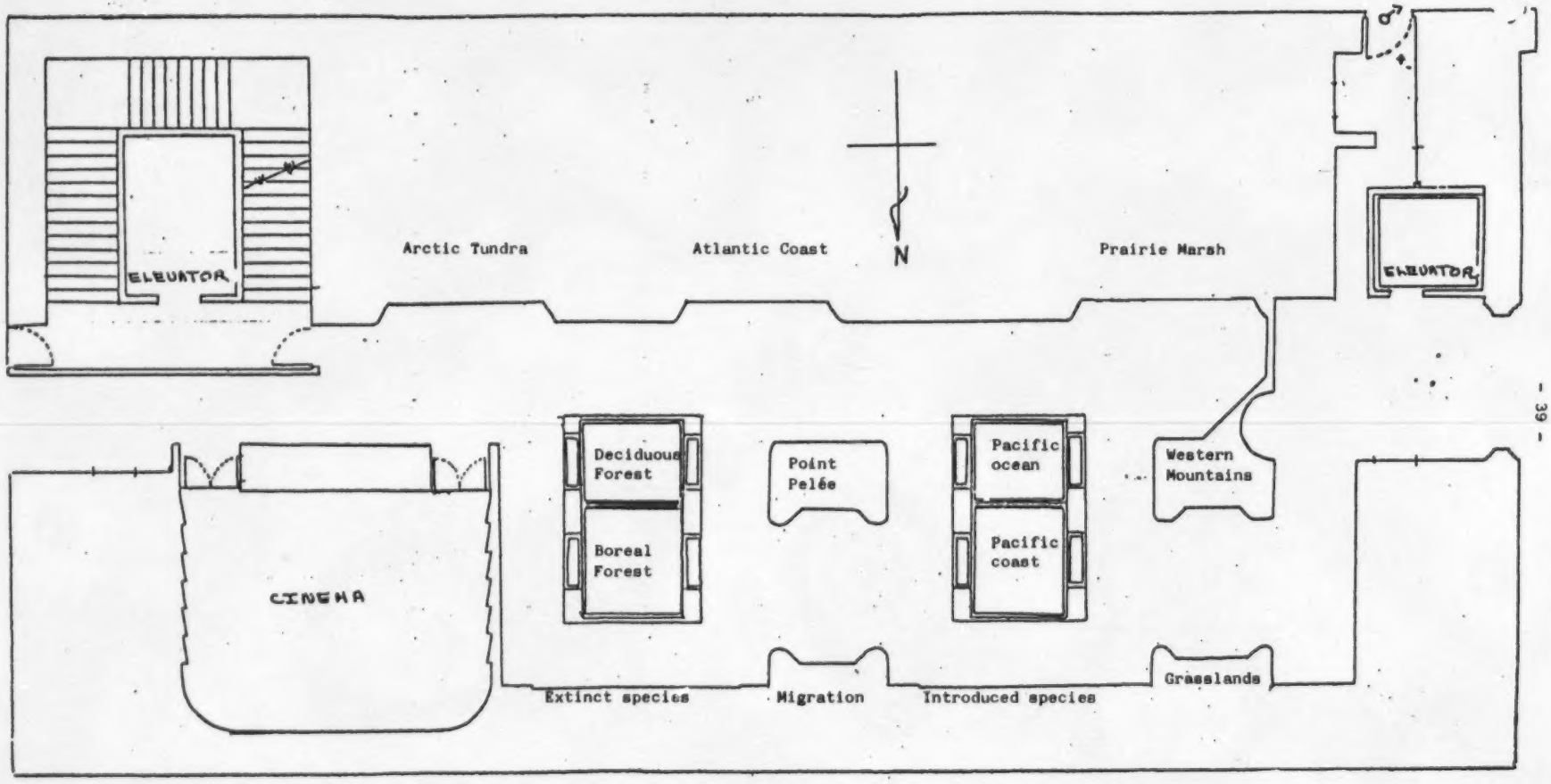
| Title | Text |
|---|---|
| Birds in Canada (introductory panel) | Birds, the only animals with feathers, are found throughout the world. About 8,600 living species are known and 532 of these have been recorded in Canada.<br><br>Climate and geography, and interaction in other animals and plants, affect the distribution of birds. Fewer species live in the harsh arctic environment than in the more temperate southerly regions. Each of the major natural regions of Canada has its characteristic bird species. These exhibits portray some representative regions and some of their native species. |
| Grasslands | Although most birds of this region are migratory, several species live there throughout the year. The Sage Grouse, a typical bird of this habitat, is able to subsist by feeding on the leaves of various sagebrush. Its spectacular courtship ritual, which takes places in the spring, is depicted here. |
| Western Mountains | With great variations in altitude in the western mountains, there are also important variations in climate, plant cover, and animal life. Distribution patterns of birds are therfore extremely complex. As many as four distinct zones of vegetation are encountered as one ascends the mountains to their treeless peaks. This vertical stratification in the mountains has led to a diverse bird fauna. |
| Pacific Coast | Mild winters, cool summers, and high precipitation characterize most of the Canadian Pacific Coast and its islands. Beaches and tide flats furnish food and resting places for various spaecies of birds, some normally found nowhere else in Canada. Additional birds peculiar to the west coast, notably species of auklets, |

| Title | Text |
| --- | --- |
| Pacific Ocean | As in all oceans, the vast expanse of the Pacific provides a suitable habitat for a number of birds particularly well-adapted to live for long periods on the high seas. The open oceans offer no shelter, but there are few predators. Oceanic birds feed on an abundant supply of squid and fish. They drink salt water, and the excess salt is excreted through special glands located in the nasal area. |
| Prairie Marsh | The countless water filled depressions that dot the prairie landscape provide an ample food supply and many nesting sites. When the water level of the potholes and marshes is adequate, the prairies have one of the highest reproduction rates in the world for many waterfowl. In addition, other birds such as bitterns, rails, blackbirds, grebes amd many shore-birds nest and feed in these marshes. |
| Atlantic Coast | During breeding season, interesting assemblages of birds congregate in immense colonies on islands and promontories along coastal waters. Most colonies are located on islands where there are few land predators, and where ocean currents bring and abundant and constant supply of food. In the crowded colonies, birds of the same species occuly their own ecological niche, and each nesting pair defends a small territory. |
| Arctic Tundra | This region is characterized by a rigorous climate, the absence of trees, and a low ground vegetation. In summer, when birds have returned from the south, long hours of daylight prevail, which allows them to nest and rear their young in a relatively short period of time. Depicted here is a Snow Goose colony at Eskimo Point on the west coast of Hudson Bay. |
| Eastern Hardwoods | Only small portions of this region formerly occupied by the mixed deciduous forest, escaped landscaping. While certain forest birds have been reduced in numbers, many inhabiting open areas have benifited from removal. In this region, numerous species reach the northern limit of |

| Title | Text |
|---|---|
| Eastern Hardwoods (continued) | of their breeding range, and the majority migrate south in the winter. |
| Boreal Forest | This forest is composed of dense, uniformly-aged stands and conifers. Most of its birds are only summer residents that winter farther south.The permanent resident species have evolved adaptation that allows them to survive the rigorous winter conditions. For instance, the Spruce Grouse can subsist in winter on a continuous diet of conifer needles by means of a special adaptation in its digestive tract. |
| Migration | Climate conditions, resouces, and physiological responses induce many birds to make long annual migrations between their nesting and wintering grounds. Some species assemble in loose flocks, and usually follow well-defined routes. Thus they benefit from favourable air currents, or follow shorelines to avoid flying over large expanses of water, as in this scene. During migration, many birds travel primarily at night. Especially in May September their faint voices are clearly audible in the darkness overhead. |
| Deciduous Forest | The mild climate of extreme southern Ontario supports plant and animal life found nowhere else in Canada. Several birds like the Orchard Oriole and the Bobwhite, reach the northern limit of their range in this region. As a result of man's profound modification of the original environment, some species have decreased in numbers while others have increased. |

Appendix D

Floor Plan of Exhibit Area




Floorplan of "Birds in Canada Exhibit"

(Appendix D)